

**CLAIMS**

We claim:

1. A filter for use with a fuel cell comprising:  
an inlet, an outlet and a medium made from perfluorinated sulfonic acid polymer  
5 and disposed between the inlet and the outlet, wherein fuel exiting the filter contains less metal ions than fuel entering the filter, wherein the perfluorinated sulfonic acid polymer is substantially similar to the polymer exchange membrane in the membrane electrode assembly of the fuel cell.
- 10 2. The filter of claim 1 being connectable to a fuel supply.
3. The filter of claim 1 being positioned in a fuel supply.
- 4 The filter of claim 1 being connectable to a fuel cell.
- 15 5 The filter of claim 1 being positioned in a fuel cell.
- 6 The filter of claim 1 being positioned in an electronic device powered by a fuel  
cell.
- 20 7. The filter of claim 1 further comprising a housing encasing the medium.
8. The filter of claim 1, wherein the perfluorinated sulfonic acid polymer medium is shredded.
- 25 9. The filter of claim 1, wherein the perfluorinated sulfonic acid polymer medium is in the form of ingots.
10. The filter of claim 1, wherein the perfluorinated sulfonic acid polymer medium is  
30 made into a textile web.

11. The filter of claim 10, wherein the textile web is a nonwoven web.
12. The filter of claim 10, wherein the textile web is a woven web.
- 5 13. The filter of claim 1, wherein the perfluorinated sulfonic acid polymer medium is made into powder form.
14. The filter of claim 1, wherein the medium is wetted before use.
- 10 15. A fuel supply for a fuel cell comprising:  
an outer casing containing fuel with a first amount of ions therein, and  
an ion filter supported by the casing, said ion filter is in fluid communication with  
said fuel;  
wherein upon flowing said fuel through said ion filter, the fuel exiting the ion  
15 filter has a second amount of ions less than said first amount of ions.
16. The fuel supply of claim 15, wherein the ion filter includes discrete pieces of filter material.
- 20 17. The fuel supply of claim 15, wherein the filter material comprises perfluorinated sulfonic acid polymer that is substantially similar to the polymer exchange membrane in the membrane electrode assembly of the fuel cell.
18. The fuel supply of claim 15, wherein the filter material is shredded.
- 25 19. The fuel supply of claim 15, wherein the filter material is wetted before use.
20. A perfluorinated sulfonic acid polymer filter medium adapted to attract metal ions from fuel usable in a fuel cell and from liquid byproduct produced in the fuel cell,  
30 wherein the filter medium is substantially similar to the polymer exchange membrane in

the membrane electrode assembly of the fuel cell, and wherein the filter medium is positioned within the fluidic flow path related to the fuel cell.

21. The perfluorinated sulfonic acid polymer filter medium of claim 20, wherein the  
5 filter medium is placed in a fuel supply.

22. The perfluorinated sulfonic acid polymer filter medium of claim 20, wherein the filter medium is placed in a mixing chamber.

10 23. The perfluorinated sulfonic acid polymer filter medium of claim 20, wherein the filter medium is placed in a byproduct chamber.